

1006983/19/069882

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SEQUENCE LISTING

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COSSET , Francois-loic
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LAVILLETTE , Dimitri
BOUTON , Olivier
RUGGIERI , Alessia

<120> Method for detecting the expression of an envelope protein of a human endogenous retrovirus and uses of a gene coding for said protein

<130> 112062

<140> 10/069,883

<141> 2002-05-01

<150> PCT/FR00/02429

<151> 2000-09-01

<150> FR-9911141

<151> 1999-09-01

<150> FR-9911793

<151> 1999-09-15

<160> 64

<170> PatentIn version 3.1

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35 40 45

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His Thr His Met Pro Arg Asn Cys Tyr His Ser Ala Thr Leu Cys Met
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His Ala Asn Thr His Tyr Trp Thr Gly Lys Met Ile Asn Pro Ser Cys
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Pro Gly Gly Leu Gly Val Thr Val Cys Trp Thr Tyr Phe Thr Gln Thr
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Ala Pro Cys Tyr Arg Ser Leu Ser Lys Gly Thr Pro Thr Phe Thr Ala
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His Thr His Met Pro Arg Asn Cys Tyr His Ser Ala Thr Leu Cys Met
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His Ala Asn Thr His Tyr Trp Thr Gly Lys Met Ile Asn Pro Ser Cys
85 90 95

Pro Gly Gly Leu Gly Val Thr Val Cys Trp Thr Tyr Phe Thr Gln Thr
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Gly Met Ser Asp Gly Gly Gly Val Gln Asp Gln Ala Arg Glu Lys His
115 120 125

Xaa Lys Glu Val Ile Ser Gln Leu Thr Arg Val His Gly Thr Ser Ser
130 135 140

Pro Tyr Lys Gly Leu Asp Leu Ser Lys Leu His Glu Thr Leu Arg Thr
145 150 155 160

His Thr Arg Leu Val Ser Leu Phe Asn Thr Thr Leu Thr Gly Leu His
165 170 175

Glu Val Ser Ala Gln Asn Pro Thr Asn Cys Trp Ile Cys Leu Pro Leu
180 185 190

Asn Phe Arg Pro Tyr Val Ser Ile Pro Val Pro Glu Gln Trp Asn Asn
195 200 205

Phe Ser Thr Glu Ile Asn Thr Thr Ser Val Leu Val Gly Pro Leu Xaa
210 215 220

Ser Asn Leu Glu Ile Thr His Thr Ser Asn Leu Thr Cys Val Lys Phe
225 230 235 240

Ser Asn Thr Thr Tyr Thr Thr Asn Ser Gln Cys Ile Arg Trp Val Thr
245 250 255

Pro Pro Thr Gln Ile Val Cys Leu Pro Ser Gly Ile Phe Phe Val Cys
260 265 270

Gly Thr Ser Ala Tyr Arg Cys Leu Asn Gly Ser Ser Glu Ser Met Cys
275 280 285

Phe Leu Ser Phe Leu Val Pro Pro Met Thr Ile Tyr Thr Glu Gln Asp
290 295 300

Leu Tyr Xaa Tyr Val Ile Ser Lys Pro Arg Asn Lys Arg Val Pro Ile
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Leu Pro Phe Val Ile Gly Ala Gly Val Leu Gly Ala Leu Gly Thr Gly
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Ile Gly Gly Ile Thr Thr Ser Thr Gln Phe Tyr Tyr Lys Leu Ser Gln
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Glu Leu Asn Gly Asp Met Glu Arg Val Ala Asp Ser Leu Val Thr Leu
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Gln Asp Gln Leu Asn Ser Leu Ala Thr Val Val Leu Gln Asn Arg Arg
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 385 390 395 400

Gly Glu Glu Cys Cys Tyr Tyr Val Asn Gln Ser Gly Ile Val Thr Glu
 405 410 415

Lys Val Lys Glu Ile Arg Asp Arg Ile Gln Arg Arg Ala Glu Glu Leu
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Arg Asn Thr Gly Pro Trp Gly Leu Leu Ser Gln Trp Met Pro Trp Ile
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Leu Pro Phe Leu Gly Pro Leu Ala Ala Ile Ile Leu Leu Leu Leu Phe
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Gly Pro Cys Ile Phe Asn Leu Leu Val Asn Phe Val Ser Ser Arg Ile
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Phe Thr Leu Thr Ala Pro Pro Pro Cys Arg Cys Met Thr Ser Ser Ser	
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Pro Tyr Gln Glu Phe Leu Trp Arg Met Gln Arg Pro Gly Asn Ile Asp	
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Ala Pro Cys Tyr Arg Ser Leu Ser Lys Gly Thr Pro Thr Phe Thr Ala	
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His Thr His Met Pro Arg Asn Cys Tyr His Ser Ala Thr Leu Cys Met	
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His Ala Asn Thr His Tyr Trp Thr Gly Lys Met Ile Asn Pro Ser Cys	
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Pro Gly Gly Leu Gly Val Thr Val Cys Trp Thr Tyr Phe Thr Gln Thr	
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ggt atg tct gat ggg ggt gga gtt caa gat cag gca aga gaa aaa cat	384
Gly Met Ser Asp Gly Gly Gly Val Gln Asp Gln Ala Arg Glu Lys His	
115 120 125	

gta aaa gaa gta atc tcc caa ctc acc cgg gta cat ggc acc tct agc	432
Val Lys Glu Val Ile Ser Gln Leu Thr Arg Val His Gly Thr Ser Ser	
130 135 140	

ccc tac aaa gga cta gat ctc tca aaa cta cat gaa acc ctc cgt acc	480
Pro Tyr Lys Gly Leu Asp Leu Ser Lys Leu His Glu Thr Leu Arg Thr	
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His	Thr	Arg	Leu	Val	Ser	Leu	Phe	Asn	Thr	Thr	Leu	Thr	Gly	Leu	His	
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gag	gtc	tcg	gcc	caa	aac	cct	act	aac	tgt	tgg	ata	tgc	ctc	ccc	ctg	576
Glu	Val	Ser	Ala	Gln	Asn	Pro	Thr	Asn	Cys	Trp	Ile	Cys	Leu	Pro	Leu	
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Asn	Phe	Arg	Pro	Tyr	Val	Ser	Ile	Pro	Val	Pro	Glu	Gln	Trp	Asn	Asn	
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ttc	agc	aca	gaa	ata	aac	acc	act	tcc	gtt	tta	gta	gga	cct	ctt	gtt	672
Phe	Ser	Thr	Glu	Ile	Asn	Thr	Thr	Ser	Val	Leu	Val	Gly	Pro	Leu	Val	
	210					215					220					
tcc	aat	ctg	gaa	ata	acc	cat	acc	tca	aac	ctc	acc	tgt	gta	aaa	ttt	720
Ser	Asn	Leu	Glu	Ile	Thr	His	Thr	Ser	Asn	Leu	Thr	Cys	Val	Lys	Phe	
225					230					235					240	
agc	aat	act	aca	tac	aca	acc	aac	tcc	caa	tgc	atc	agg	tgg	gta	act	768
Ser	Asn	Thr	Thr	Tyr	Thr	Thr	Asn	Ser	Gln	Cys	Ile	Arg	Trp	Val	Thr	
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cct	ccc	aca	caa	ata	gtc	tgc	cta	ccc	tca	gga	ata	ttt	ttt	gtc	tgt	816
Pro	Pro	Thr	Gln	Ile	Val	Cys	Leu	Pro	Ser	Gly	Ile	Phe	Phe	Val	Cys	
			260					265					270			
ggc	acc	tca	gcc	tat	cgt	tgt	ttg	aat	ggc	tct	tca	gaa	tct	atg	tgc	864
Gly	Thr	Ser	Ala	Tyr	Arg	Cys	Leu	Asn	Gly	Ser	Ser	Glu	Ser	Met	Cys	
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Phe	Leu	Ser	Phe	Leu	Val	Pro	Pro	Met	Thr	Ile	Tyr	Thr	Glu	Gln	Asp	
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Leu	Tyr	Ser	Tyr	Val	Ile	Ser	Lys	Pro	Arg	Asn	Lys	Arg	Val	Pro	Ile	
305				310						315					320	
ctt	cct	ttt	gtt	ata	gga	gca	gga	gtg	cta	ggc	gca	cta	ggc	act	ggc	1008
Leu	Pro	Phe	Val	Ile	Gly	Ala	Gly	Val	Leu	Gly	Ala	Leu	Gly	Thr	Gly	
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Ile	Gly	Gly	Ile	Thr	Thr	Ser	Thr	Gln	Phe	Tyr	Tyr	Lys	Leu	Ser	Gln	
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gaa	cta	aat	ggg	gac	atg	gaa	cgg	gtc	gcc	gac	tcc	ctg	gtc	acc	ttg	1104
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		355					360					365				
caa	gat	caa	ctt	aac	tcc	cta	gcg	aca	gta	gtc	ctt	caa	aat	cga	aga	1152
Gln	Asp	Gln	Leu	Asn	Ser	Leu	Ala	Thr	Val	Val	Leu	Gln	Asn	Arg	Arg	
	370					375					380					
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His	Ala	Asn	Thr	His	Tyr	Trp	Thr	Gly	Lys	Met	Ile	Asn	Pro	Ser	Cys
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Pro	Gly	Gly	Leu	Gly	Val	Thr	Val	Cys	Trp	Thr	Tyr	Phe	Thr	Gln	Thr
			100					105					110		
Gly	Met	Ser	Asp	Gly	Gly	Gly	Val	Gln	Asp	Gln	Ala	Arg	Glu	Lys	His
		115					120					125			
Val	Lys	Glu	Val	Ile	Ser	Gln	Leu	Thr	Arg	Val	His	Gly	Thr	Ser	Ser
	130					135					140				
Pro	Tyr	Lys	Gly	Leu	Asp	Leu	Ser	Lys	Leu	His	Glu	Thr	Leu	Arg	Thr
145					150					155					160
His	Thr	Arg	Leu	Val	Ser	Leu	Phe	Asn	Thr	Thr	Leu	Thr	Gly	Leu	His
				165					170					175	
Glu	Val	Ser	Ala	Gln	Asn	Pro	Thr	Asn	Cys	Trp	Ile	Cys	Leu	Pro	Leu
			180					185					190		
Asn	Phe	Arg	Pro	Tyr	Val	Ser	Ile	Pro	Val	Pro	Glu	Gln	Trp	Asn	Asn
		195					200					205			
Phe	Ser	Thr	Glu	Ile	Asn	Thr	Thr	Ser	Val	Leu	Val	Gly	Pro	Leu	Val
	210					215					220				
Ser	Asn	Leu	Glu	Ile	Thr	His	Thr	Ser	Asn	Leu	Thr	Cys	Val	Lys	Phe
225					230					235					240
Ser	Asn	Thr	Thr	Tyr	Thr	Thr	Asn	Ser	Gln	Cys	Ile	Arg	Trp	Val	Thr
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Pro	Pro	Thr	Gln	Ile	Val	Cys	Leu	Pro	Ser	Gly	Ile	Phe	Phe	Val	Cys
			260					265					270		
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Phe Leu Ser Phe Leu Val Pro Pro Met Thr Ile Tyr Thr Glu Gln Asp
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Leu Tyr Ser Tyr Val Ile Ser Lys Pro Arg Asn Lys Arg Val Pro Ile
 305 310 315 320

Leu Pro Phe Val Ile Gly Ala Gly Val Leu Gly Ala Leu Gly Thr Gly
 325 330 335

Ile Gly Gly Ile Thr Thr Ser Thr Gln Phe Tyr Tyr Lys Leu Ser Gln
 340 345 350

Glu Leu Asn Gly Asp Met Glu Arg Val Ala Asp Ser Leu Val Thr Leu
 355 360 365

Gln Asp Gln Leu Asn Ser Leu Ala Thr Val Val Leu Gln Asn Arg Arg
 370 375 380

Ala Leu Asp Leu Leu Thr Ala Glu Arg Gly Gly Thr Cys Leu Phe Leu
 385 390 395 400

Gly Glu Glu Cys Cys Tyr Tyr Val Asn Gln Ser Gly Ile Val Thr Glu
 405 410 415

Lys Val Lys Glu Ile Arg Asp Arg Ile Gln Arg Arg Ala Glu Glu Leu
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Arg Asn Thr Gly Pro Trp Gly Leu Leu Ser Gln Trp Met Pro Trp Ile
 435 440 445

Leu Pro Phe Leu Gly Pro Leu Ala Ala Ile Ile Leu Leu Leu Phe
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Gly Pro Cys Ile Phe Asn Leu Leu Val Asn Phe Val Ser Ser Arg Ile
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Glu Ala Val Lys Leu Gln Met Glu Pro Lys Met Gln Ser Lys Thr Lys
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Ile Tyr Arg Arg Pro Leu Asp Arg Asn Ala Ser Pro Arg Ser Asp Val
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Asn Asp Ile Lys Gly Thr Pro Pro Glu Glu Ile Ser Ala Ala Gln Pro
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Ile Tyr Arg Arg Pro Leu Asp Arg Asn Ala Ser Pro Arg Ser Asp Val	
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Asn Asp Ile Lys Gly Thr Pro Pro Glu Glu Ile Ser Ala Ala Gln Pro	
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Ile Tyr Arg Arg Pro Leu Asp Arg Asn Ala Ser Pro Arg Ser Asp Val
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Phe Thr Leu Thr Ala Pro Pro Pro Cys Arg Cys Met Thr Ser Ser Ser	
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His Thr His Met Pro Arg Asn Cys Tyr His Ser Ala Thr Leu Cys Met	
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His Ala Asn Thr His Tyr Trp Thr Gly Lys Met Ile Asn Pro Ser Cys	
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cct gga gga ctt gga gtc act gtc tgt tgg act tac ttc acc caa act	336
Pro Gly Gly Leu Gly Val Thr Val Cys Trp Thr Tyr Phe Thr Gln Thr	
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ggc atg tct gat ggc ggc gga gtt caa gat cag gca aga gaa aaa cat	384
Gly Met Ser Asp Gly Gly Gly Val Gln Asp Gln Ala Arg Glu Lys His	
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gca Ala	aaa Lys 130	gaa Glu	gta Val	atc Ile	tcc Ser	caa Gln 135	ctc Leu	acc Thr	cgg Arg	gta Val	cat His 140	ggc Gly	acc Thr	tct Ser	agc Ser	432
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tcc Ser 225	aat Asn	ctg Leu	gaa Glu	ata Ile	acc Thr 230	cat His	acc Thr	tca Ser	aac Asn	ctc Leu 235	acc Thr	tgt Cys	gta Val	aaa Lys	ttt Phe 240	720
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tta Leu 305	tac Tyr	agt Ser	tat Tyr	gtc Val	ata Ile 310	tct Ser	aag Lys	ccc Pro	cgc Arg	aac Asn 315	aaa Lys	aga Arg	gta Val	ccc Pro	att Ile 320	960
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Gln Asp Gln Leu Asn Ser Leu Ala Thr Val Val Leu Gln Asn Arg Arg
370 375 380

gct tta gac ttg cta acc gct gaa aga ggg gga acc tgt tta ttt tta 1200
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385 390 395 400

ggg gaa gaa tgc tgt tat tat gtt aat caa tcc gga atc gtc act gag 1248
 Gly Glu Glu Cys Cys Tyr Tyr Val Asn Gln Ser Gly Ile Val Thr Glu
 405 410 415

aaa gtt aaa gaa att cga gat cga ata caa cgt aga gca gag gag ctt 1296
Lys Val Lys Glu Ile Arg Asp Arg Ile Gln Arg Arg Ala Glu Glu Leu
420 425 430

cga aac act gga ccc tgg ggc ctc ctc agc caa tgg atg ccc tgg att 1344
Arg Asn Thr Gly Pro Trp Gly Leu Leu Ser Gln Trp Met Pro Trp Ile
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Leu Pro Phe Leu Gly Pro Leu Ala Ala Ile Ile Leu Leu Leu Leu Phe
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gga ccc tgt atc ttt aac ctc ctt gtt aac ttt gtc tct tcc aga atc 1440
Gly Pro Cys Ile Phe Asn Leu Leu Val Asn Phe Val Ser Ser Arg Ile
465 470 475 480

gaa gct gta aaa cta caa atg gag ccc aag atg cag tcc aag act aag 1488
Glu Ala Val Lys Leu Gln Met Glu Pro Lys Met Gln Ser Lys Thr Lys
485 490 495

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<212> PRT

<213> Homo sapiens

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Pro Tyr Gln Glu Phe Leu Trp Arg Met Gln Arg Pro Gly Asn Ile Asp
 35 40 45

Ala Pro Cys Tyr Arg Ser Leu Ser Lys Gly Thr Pro Thr Phe Thr Ala
 50 55 60

His Thr His Met Pro Arg Asn Cys Tyr His Ser Ala Thr Leu Cys Met
 65 70 75 80

His Ala Asn Thr His Tyr Trp Thr Gly Lys Met Ile Asn Pro Ser Cys
 85 90 95

Pro Gly Gly Leu Gly Val Thr Val Cys Trp Thr Tyr Phe Thr Gln Thr
 100 105 110

Gly Met Ser Asp Gly Gly Gly Val Gln Asp Gln Ala Arg Glu Lys His
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Ala Lys Glu Val Ile Ser Gln Leu Thr Arg Val His Gly Thr Ser Ser
 130 135 140

Pro Tyr Lys Gly Leu Asp Leu Ser Lys Leu His Glu Thr Leu Arg Thr
 145 150 155 160

His Thr Arg Leu Val Ser Leu Phe Asn Thr Thr Leu Thr Gly Leu His
 165 170 175

Glu Val Ser Ala Gln Asn Pro Thr Asn Cys Trp Ile Cys Leu Pro Leu
 180 185 190

Asn Phe Arg Pro Tyr Val Ser Ile Pro Val Pro Glu Gln Trp Asn Asn
 195 200 205

Phe Ser Thr Glu Ile Asn Thr Thr Ser Val Leu Val Gly Pro Leu Val
 210 215 220

Ser Asn Leu Glu Ile Thr His Thr Ser Asn Leu Thr Cys Val Lys Phe
 225 230 235 240

Ser Asn Thr Thr Tyr Thr Thr Asn Ser Gln Cys Ile Arg Trp Val Thr
 245 250 255

Pro Pro Thr Gln Ile Val Cys Leu Pro Ser Gly Ile Phe Phe Val Cys
 260 265 270

Gly Thr Ser Ala Tyr Arg Cys Leu Asn Gly Ser Ser Glu Ser Met Cys
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Leu Tyr Ser Tyr Val Ile Ser Lys Pro Arg Asn Lys Arg Val Pro Ile
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Leu Pro Phe Val Ile Gly Ala Gly Val Leu Gly Ala Leu Gly Thr Gly
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Ile Gly Gly Ile Thr Thr Ser Thr Gln Phe Tyr Tyr Lys Leu Ser Gln
 340 345 350

Glu Leu Asn Gly Asp Met Glu Arg Val Ala Asp Ser Leu Val Thr Leu
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Gln Asp Gln Leu Asn Ser Leu Ala Thr Val Val Leu Gln Asn Arg Arg
 370 375 380

Ala Leu Asp Leu Leu Thr Ala Glu Arg Gly Gly Thr Cys Leu Phe Leu
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Gly Glu Glu Cys Cys Tyr Tyr Val Asn Gln Ser Gly Ile Val Thr Glu
 405 410 415

Lys Val Lys Glu Ile Arg Asp Arg Ile Gln Arg Arg Ala Glu Glu Leu
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Arg Asn Thr Gly Pro Trp Gly Leu Leu Ser Gln Trp Met Pro Trp Ile
 435 440 445

Leu Pro Phe Leu Gly Pro Leu Ala Ala Ile Ile Leu Leu Leu Leu Phe
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Gly Pro Cys Ile Phe Asn Leu Leu Val Asn Phe Val Ser Ser Arg Ile
 465 470 475 480

Glu Ala Val Lys Leu Gln Met Glu Pro Lys Met Gln Ser Lys Thr Lys
 485 490 495

Ile Tyr Arg Arg Pro Leu Asp Arg Asn Ala Ser Pro Arg Ser Asp Val
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35 40 45

Ala Pro Ser Tyr Arg Ser Leu Ser Lys Gly Thr Pro Thr Phe Thr Ala
50 55 60

His Thr His Met Pro Arg Asn Cys Tyr His Ser Ala Thr Leu Cys Met
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His Ala Asn Thr His Tyr Trp Thr Gly Lys Met Ile Asn Pro Ser Cys
85 90 95

Pro Gly Gly Leu Gly Val Thr Val Cys Trp Thr Tyr Phe Thr Gln Thr
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Gly Met Ser Asp Gly Gly Gly Val Gln Asp Gln Ala Arg Glu Lys His
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Val Lys Glu Val Ile Ser Gln Leu Thr Arg Val His Gly Thr Ser Ser
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Pro Tyr Lys Gly Leu Asp Leu Ser Lys Leu His Glu Thr Leu Arg Thr
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His Thr Arg Leu Val Ser Leu Phe Asn Thr Thr Leu Thr Gly Leu His
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Glu Val Ser Ala Gln Asn Pro Thr Asn Cys Trp Ile Cys Leu Pro Leu
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Asn Phe Arg Pro Tyr Val Ser Ile Pro Val Pro Glu Gln Trp Asn Asn
 195 200 205

Phe Ser Thr Glu Ile Asn Thr Thr Ser Val Leu Val Gly Pro Leu Val
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Ser Asn Leu Glu Ile Thr His Thr Ser Asn Leu Thr Cys Val Lys Phe
 225 230 235 240

Ser Asn Thr Thr Tyr Thr Thr Asn Ser Gln Cys Ile Arg Trp Val Thr
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Pro Pro Thr Gln Ile Val Cys Leu Pro Ser Gly Ile Phe Phe Val Cys
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Gly Thr Ser Ala Tyr Arg Cys Leu Asn Gly Ser Ser Glu Ser Met Cys
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Phe Leu Ser Phe Leu Val Pro Pro Met Thr Ile Tyr Thr Glu Gln Asp
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Leu Tyr Ser Tyr Val Ile Ser Lys Pro Arg Asn Lys Arg Val Pro Ile
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Leu Pro Phe Val Ile Gly Ala Gly Val Leu Gly Ala Leu Gly Thr Gly
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Ile Gly Gly Ile Thr Thr Ser Thr Gln Phe Tyr Tyr Lys Leu Ser Gln
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Glu Leu Asn Gly Asp Met Glu Arg Val Ala Asp Ser Leu Val Thr Leu
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Gln Asp Gln Leu Asn Ser Leu Ala Ala Val Val Leu Gln Asn Arg Arg
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Ala Leu Asp Leu Leu Thr Ala Glu Arg Gly Gly Thr Cys Leu Phe Leu
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Gly Glu Glu Cys Cys Tyr Tyr Val Asn Gln Ser Gly Ile Val Thr Glu
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Lys Val Lys Glu Ile Arg Asp Arg Ile Gln Arg Arg Ala Glu Glu Leu
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Arg Asn Thr Gly Pro Trp Gly Leu Leu Ser Gln Trp Met Pro Trp Ile
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Leu Pro Phe Leu Gly Pro Leu Ala Ala Ile Ile Leu Leu Leu Leu Phe
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Gly Pro Cys Ile Phe Asn Leu Leu Val Asn Phe Val Ser Ser Arg Ile
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Glu Ala Val Lys Leu Gln Met Glu Pro Lys Met Gln Ser Lys Thr Lys
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Ile Tyr Arg Arg Pro Leu Asp Arg Pro Ala Ser Pro Arg Ser Asp Val
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